



SEQUENCE LISTING

<110> Dragic, Tatjana
Olson, William C.

<120> SULFATED CCR5 PEPTIDES FOR HIV-1 INFECTION

<130> 61010-AB-1

<140> US 10/086,814

<141> 2002-02-28

<160> 38

<170> PatentIn version 3.1

<210> 1

<211> 352

<212> PRT

<213> Homo sapiens

<400> 1

Met Asp Tyr Gln Val Ser Ser Pro Ile Tyr Asp Ile Asn Tyr Tyr Thr
1 5 10 15

Ser Glu Pro Cys Gln Lys Ile Asn Val Lys Gln Ile Ala Ala Arg Leu
20 25 30

Leu Pro Pro Leu Tyr Ser Leu Val Phe Ile Phe Gly Phe Val Gly Asn
35 40 45

Met Leu Val Ile Leu Ile Leu Ile Asn Cys Lys Arg Leu Lys Ser Met
50 55 60

Thr Asp Ile Tyr Leu Leu Asn Leu Ala Ile Ser Asp Leu Phe Phe Leu
65 70 75 80

Leu Thr Val Pro Phe Trp Ala His Tyr Ala Ala Ala Gln Trp Asp Phe
85 90 95

Gly Asn Thr Met Cys Gln Leu Leu Thr Gly Leu Tyr Phe Ile Gly Phe
100 105 110

Phe Ser Gly Ile Phe Phe Ile Ile Leu Leu Thr Ile Asp Arg Tyr Leu
115 120 125

Ala Val Val His Ala Val Phe Ala Leu Lys Ala Arg Thr Val Thr Phe
130 135 140

Gly Val Val Thr Ser Val Ile Thr Trp Val Val Ala Val Phe Ala Ser
145 150 155 160

Leu Pro Gly Ile Ile Phe Thr Arg Ser Gln Lys Glu Gly Leu His Tyr
165 170 175

Thr Cys Ser Ser His Phe Pro Tyr Ser Gln Tyr Gln Phe Trp Lys Asn
180 185 190

Phe Gln Thr Leu Lys Ile Val Ile Leu Gly Leu Val Leu Pro Leu Leu
195 200 205

Val Met Val Ile Cys Tyr Ser Gly Ile Leu Lys Thr Leu Leu Arg Cys
210 215 220

Arg Asn Glu Lys Lys Arg His Arg Ala Val Arg Leu Ile Phe Thr Ile
225 230 235 240

Met Ile Val Tyr Phe Leu Phe Trp Ala Pro Tyr Asn Ile Val Leu Leu
245 250 255

Leu Asn Thr Phe Gln Glu Phe Phe Gly Leu Asn Asn Cys Ser Ser Ser
 260 265 270

Asn Arg Leu Asp Gln Ala Met Gln Val Thr Glu Thr Leu Gly Met Thr
 275 280 285

His Cys Cys Ile Asn Pro Ile Ile Tyr Ala Phe Val Gly Glu Lys Phe
 290 295 300

Arg Asn Tyr Leu Leu Val Phe Phe Gln Lys His Ile Ala Lys Arg Phe
 305 310 315 320

Cys Lys Cys Cys Ser Ile Phe Gln Gln Glu Ala Pro Glu Arg Ala Ser
 325 330 335

Ser Val Tyr Thr Arg Ser Thr Gly Glu Gln Glu Ile Ser Val Gly Leu
 340 345 350

<210> 2

<211> 1376

<212> DNA

<213> Homo sapiens

<400> 2

gaattcccc aacagagcca agctctccat ctagtggaca ggaaagctag cagcaaacct
 60

tcccttcact acaaaaacttc attgcttggc caaaaagaga gttaattcaa tgttagacatc
 120

tatgtaggca attaaaaacc tattgatgta taaaacagtt tgcattcatg gagggcaact
 180

aaatacattc taggacttta taaaagatca cttttattt atgcacaggg tggaacaaga
 240

tggattatca agtgtcaagt ccaatctatg acatcaatta ttatacatcg gagccctgcc
300

aaaaaatcaa tgtgaagcaa atcgcagccc gcctcctgcc tccgctctac tcactggtgt
360

tcatcttgg ttttgtggc aacatgctgg tcatcctcat cctgataaac tgcaaaaggc
420

tgaagagcat gactgacatc tacctgctca acctggccat ctctgacctg ttttccttc
480

ttactgtccc cttctggct cactatgctg ccgcccagtg ggactttgga aatacaatgt
540

gtcaactctt gacagggctc tattttatag gtttcttctc tggaatcttc ttcatcatcc
600

tcctgacaat cgataggtac ctggctgtcg tccatgctgt gtttgcttta aaagccagga
660

cggtcacacctt tgggggtggtg acaagtgtga tcacttgggt ggtggctgtg tttgcgtctc
720

tcccaggaat catcttacc agatctaaa aagaaggct tcattacacc tgtagctctc
780

attttccata cagtcagttt caattctgga agaatttcca gacattaaag atagtcatct
840

tggggctggc cctggcgctg cttgtcatgg tcatctgcta ctcggaaatc ctaaaaactc
900

tgcttcggtg tcgaaatgag aagaagaggc acagggtgtt gaggcttac ttcaccatca
960

tgattgttta ttttcttcttc tgggctccct acaacattgt ctttctcctg aacaccccttcc
1020

aggaattctt tggcctgaat aattgcagta gctctaacag gttggaccaa gctatgcagg
1080

tgacagagac tcttggatg acgcactgct gcatcaaccc catcatctat gccttgcgtcg

1140

gggagaagtt cagaaaactac ctcttagtct tcttccaaaa gcacattgcc aaacgcttct
1200

gcaaatgctg ttctatttc cagcaagagg ctcccgagcg agcaagctca gtttacaccc
1260

gatccactgg ggagcaggaa atatctgtgg gcttgtgaca cgactcaag tgggctggtg
1320

accaggtcag agttgtgcac atggcttagt tttcatacac acgcctggct gggggt
1376

<210> 3
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Any amino acid

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are
more than 2 amino acids, they have a sequence identical to the se-
quence set forth in SEQ ID NO: 1 beginning with the Ile at position 9 and
extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (3)..(3)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (7)..(7)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 14 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 18 and extending therefrom in the carboxy terminal direction.

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Any amino acid

<400> 3

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 4
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence

set forth in SEQ ID NO: 1 beginning with the Ile at position 9 and extending therefrom in the amino terminal direction.

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (7)..(8)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 14 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 18 and extending therefrom in the carboxy terminal direction.

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<400> 4

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 5
<211> 12

<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are
more than 2 amino acids, they have a sequence identical to the se-
quence set forth in SEQ ID NO: 1 beginning with the Ile at posi-
on 9 and extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (3)..(3)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (8)..(8)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 14 amino acids, where if there are
more than 2 amino acids, they have a sequence identical to the s-
equence set forth in SEQ ID NO: 1 beginning with the Glu at posi-
tion 18 and extending therefrom in the carboxy terminal direction.

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<400> 5

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 6
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are
more than 2 amino acids, they have a sequence identical to the se-
quence set forth in SEQ ID NO: 1 beginning with the Ile at posi-
on 9 and extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (3)..(3)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (7)..(7)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 14 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 18 and extending therefrom in the carboxy terminal direction.

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<400> 6

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 7
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE

<223> Xaa is any amino acid

<400> 7

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 8

<211> 12

<212> PRT

<213> Homo sapiens

<220>

<221> MISC_FEATURE

<222> (1)..(1)

<223> Xaa is any amino acid

<220>

<221> MOD_RES

<222> (1)..(1)

<223> ACETYLATION

<220>

<221> MISC_FEATURE

<222> (2)..(2)

<223> Xaa represents from 0 to 9 amino acids, where if there are
more than 2 amino acids, they have a sequence identical to the se-
quence set forth in SEQ ID NO: 1 beginning with the Ile at posi-
tion 9 and extending therefrom in the amino terminal direction.

<220>

<221> MOD_RES

<222> (3)..(3)

<223> SULFATATION

<220>
<221> MOD_RES
<222> (8)..(8)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 14 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 18 and extending therefrom in the carboxy terminal direction.

<400> 8

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 9
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>

<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Ile at position 9 and extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (3)..(3)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (7)..(7)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 14 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 18 and extending therefrom in the carboxy terminal direction.

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<220>
<221> MOD_RES

<222> (12)..(12)
<223> AMIDATION

<400> 9

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 10
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are
more than 2 amino acids, they have a sequence identical to the se-
quence set forth in SEQ ID NO: 1 beginning with the Ile at position 9 and
extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (7)..(8)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 14 amino acids, where if there are

more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 18 and extending therefrom in the carboxy terminal direction.

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (12)..(12)
<223> AMIDATION

<400> 10

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 11
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the se

quence
set forth in SEQ ID NO: 1 beginning with the Ile at position 9 and extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (3)..(3)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (8)..(8)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 14 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 18 and extending therefrom in the carboxy terminal direction.

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (12)..(12)
<223> AMIDATION

<400> 11

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 12
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are
more than 2 amino acids, they have a sequence identical to the sequence
set forth in SEQ ID NO: 1 beginning with the Ile at position 9 and
extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (3)..(3)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (7)..(7)

<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 14 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 18 and extending therefrom in the carboxy terminal direction.

<220>
<221> MOD_RES
<222> (12)..(12)
<223> AMIDATION

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<400> 12

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 13
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Ile at position 9 and extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (7)..(8)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 14 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 18 and extending therefrom in the carboxy terminal direction.

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (12)..(12)
<223> AMIDATION

<400> 13

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 14
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are
more than 2 amino acids, they have a sequence identical to the se-
quence set forth in SEQ ID NO: 1 beginning with the Ile at posi-
tion 9 and extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES

<222> (3)..(3)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (8)..(8)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 14 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 18 and extending therefrom in the carboxy terminal direction.

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (12)..(12)
<223> AMIDATION

<400> 14

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 15
<211> 12
<212> PRT

<213> Homo sapiens

<220>

<221> MISC_FEATURE

<222> (1)..(1)

<223> Xaa is any amino acid

<220>

<221> MISC_FEATURE

<222> (2)..(2)

<223> Xaa represents from 0 to 9 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Ile at position 9 and extending therefrom in the amino terminal direction.

<220>

<221> MOD_RES

<222> (3)..(3)

<223> SULFATATION

<220>

<221> MOD_RES

<222> (7)..(7)

<223> SULFATATION

<220>

<221> MISC_FEATURE

<222> (11)..(11)

<223> Xaa represents from 0 to 334 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 18 and extending therefrom in the carboxy terminal direction

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<400> 15

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 16
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are
more than 2 amino acids, they have a sequence identical to the se-
quence set forth in SEQ ID NO: 1 beginning with the Ile at posi-
tion 9 and extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (7)..(8)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 334 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 1 8 and extending therefrom in the carboxy terminal direction

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<400> 16

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 17
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence

set forth in SEQ ID NO: 1 beginning with the Ile at position 9 and extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (3)..(3)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (8)..(8)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 334 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 1 and extending therefrom in the carboxy terminal direction.
.

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<400> 17

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 18

<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are
more than 2 amino acids, they have a sequence identical to the se-
quence set forth in SEQ ID NO: 1 beginning with the Ile at posi-
on 9 and extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (3)..(3)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (7)..(7)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)

<223> Xaa represents from 0 to 334 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 1 8 and extending therefrom in the carboxy terminal direction .

<220>

<221> MISC_FEATURE

<222> (12)..(12)

<223> Xaa is any amino acid

<400> 18

Xaa	Xaa	Tyr	Asp	Ile	Asn	Tyr	Tyr	Thr	Ser	Xaa	Xaa
1				5					10		

<210> 19

<211> 12

<212> PRT

<213> Homo sapiens

<220>

<221> MISC_FEATURE

<222> (1)..(1)

<223> Xaa is any amino acid

<220>

<221> MOD_RES

<222> (1)..(1)

<223> ACETYLATION

<220>

<221> MISC_FEATURE

<222> (2)..(2)

<223> Xaa represents from 0 to 9 amino acids, where if there are

more t
han 2 amino acids, they have a sequence identical to the se
quence
set forth in SEQ ID NO: 1 beginning with the Ile at posi
on 9 a
nd extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (7)..(8)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 334 amino acids, where if there ar
e more
than 2 amino acids, they have a sequence identical to the
sequen
ce set forth in SEQ ID NO: 1 beginning with the Glu at posi
tion 1
8 and extending therefrom in the carboxy terminal direction

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<400> 19

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 20
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are
more than 2 amino acids, they have a sequence identical to the se-
quence
set forth in SEQ ID NO: 1 beginning with the Ile at posi-
on 9 and
nd extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (3)..(3)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (8)..(8)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 334 amino acids, where if there ar-
e more
than 2 amino acids, they have a sequence identical to the

sequen
ce set forth in SEQ ID NO: 1 beginning with the Glu at posi
tion 1
8 and extending therefrom in the carboxy terminal direction

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<400> 20

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 21
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are
more t
han 2 amino acids, they have a sequence identical to the se
quence
set forth in SEQ ID NO: 1 beginning with the Ile at posi
on 9 a
nd extending therefrom in the amino terminal direction.

<220>

<221> MOD_RES
<222> (3)..(3)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (7)..(7)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 334 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 1 and extending therefrom in the carboxy terminal direction.

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (12)..(12)
<223> AMIDATION

<400> 21

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 22

<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are
more than 2 amino acids, they have a sequence identical to the se-
quence set forth in SEQ ID NO: 1 beginning with the Ile at posi-
tion 9 and extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (7)..(8)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 334 amino acids, where if there ar-
e more than 2 amino acids, they have a sequence identical to the
sequence set forth in SEQ ID NO: 1 beginning with the Glu at posi-
tion 18 and extending therefrom in the carboxy terminal direction
.

<220>
<221> MISC_FEATURE

<222> (12)..(12)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (12)..(12)
<223> AMIDATION

<400> 22

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 23
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are
more than 2 amino acids, they have a sequence identical to the se-
quence set forth in SEQ ID NO: 1 beginning with the Ile at posi-
on 9 and extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (3)..(3)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (8)..(8)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 334 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 1 and extending therefrom in the carboxy terminal direction

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (12)..(12)
<223> AMIDATION

<400> 23

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 24
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Ile at position 9 and extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (3)..(3)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (7)..(7)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 334 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the

sequen

ce set forth in SEQ ID NO: 1 beginning with the Glu at position 1
8 and extending therefrom in the carboxy terminal direction

<220>

<221> MISC_FEATURE

<222> (12)..(12)

<223> Xaa is any amino acid

<220>

<221> MOD_RES

<222> (12)..(12)

<223> AMIDATION

<400> 24

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 25

<211> 12

<212> PRT

<213> Homo sapiens

<220>

<221> MISC_FEATURE

<222> (1)..(1)

<223> Xaa is any amino acid

<220>

<221> MOD_RES

<222> (1)..(1)

<223> ACETYLATION

<220>

<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Ile at position 9 and extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (7)..(8)
<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 334 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 1 and extending therefrom in the carboxy terminal direction

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (12)..(12)
<223> AMIDATION

<400> 25

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 26
<211> 12
<212> PRT
<213> Homo sapiens

<220>
<221> MISC_FEATURE
<222> (1)..(1)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (1)..(1)
<223> ACETYLATION

<220>
<221> MISC_FEATURE
<222> (2)..(2)
<223> Xaa represents from 0 to 9 amino acids, where if there are
more than 2 amino acids, they have a sequence identical to the se-
quence set forth in SEQ ID NO: 1 beginning with the Ile at posi-
tion 9 and extending therefrom in the amino terminal direction.

<220>
<221> MOD_RES
<222> (3)..(3)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (8)..(8)

<223> SULFATATION

<220>
<221> MISC_FEATURE
<222> (11)..(11)
<223> Xaa represents from 0 to 334 amino acids, where if there are more than 2 amino acids, they have a sequence identical to the sequence set forth in SEQ ID NO: 1 beginning with the Glu at position 1 8 and extending therefrom in the carboxy terminal direction

<220>
<221> MISC_FEATURE
<222> (12)..(12)
<223> Xaa is any amino acid

<220>
<221> MOD_RES
<222> (12)..(12)
<223> AMIDATION

<400> 26

Xaa Xaa Tyr Asp Ile Asn Tyr Tyr Thr Ser Xaa Xaa
1 5 10

<210> 27
<211> 17
<212> PRT
<213> Homo sapiens

<400> 27

Asp Tyr Gln Val Ser Ser Pro Ile Tyr Asp Ile Asn Tyr Tyr Thr Ser
1 5 10 15

Glu

<210> 28
<211> 17
<212> PRT
<213> Homo sapiens

<220>
<221> MOD_RES
<222> (2)..(2)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (9)..(9)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (13)..(13)
<223> SULFATATION

<400> 28

Asp Tyr Gln Val Ser Ser Pro Ile Tyr Asp Ile Asn Tyr Tyr Thr Ser
1 5 10 15

Glu

<210> 29
<211> 17
<212> PRT
<213> Homo sapiens

<220>
<221> MOD_RES
<222> (9)..(9)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (13)..(13)
<223> SULFATATION

<400> 29

Asp Tyr Gln Val Ser Ser Pro Ile Tyr Asp Ile Asn Tyr Tyr Thr Ser
1 5 10 15

Glu

<210> 30
<211> 21
<212> PRT
<213> Homo sapiens

<220>
<221> MOD_RES
<222> (9)..(9)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (13)..(13)
<223> SULFATATION

<220>
<221> BINDING
<222> (21)..(21)

<223> BIOTIN

<400> 30

Asp Tyr Gln Val Ser Ser Pro Ile Tyr Asp Ile Asn Tyr Tyr Thr Ser
1 5 10 15

Glu Gly Ala Gly Lys
20

<210> 31

<211> 17

<212> PRT

<213> Homo sapiens

<220>

<221> MOD_RES

<222> (9)..(9)

<223> SULFATATION

<400> 31

Asp Tyr Gln Val Ser Ser Pro Ile Tyr Asp Ile Asn Tyr Tyr Thr Ser
1 5 10 15

Glu

<210> 32

<211> 17

<212> PRT

<213> Homo sapiens

<220>

<221> MOD_RES

<222> (13)..(13)

<223> SULFATATION

<400> 32

Asp Tyr Gln Val Ser Ser Pro Ile Tyr Asp Ile Asn Tyr Tyr Thr Ser
1 5 10 15

Glu

<210> 33
<211> 5
<212> PRT
<213> Homo sapiens

<220>
<221> MOD_RES
<222> (1)..(1)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (5)..(5)
<223> SULFATATION

<400> 33

Tyr Asp Ile Asn Tyr
1 5

<210> 34
<211> 17
<212> PRT
<213> Homo sapiens

<220>
<221> MOD_RES
<222> (2)..(2)

<223> PHOSPHORYLATION

<220>
<221> MOD_RES
<222> (9)..(9)
<223> PHOSPHORYLATION

<220>
<221> MOD_RES
<222> (13)..(13)
<223> PHOSPHORYLATION

<400> 34

Asp Tyr Gln Val Ser Ser Pro Ile Tyr Asp Ile Asn Tyr Tyr Thr Ser
1 5 10 15

Glu

<210> 35
<211> 17
<212> PRT
<213> *Homo sapiens*

<220>
<221> MOD_RES
<222> (9)..(9)
<223> PHOSPHORYLATION

<220>
<221> MOD_RES
<222> (13)..(13)
<223> PHOSPHORYLATION

<400> 35

Asp Tyr Gln Val Ser Ser Pro Ile Tyr Asp Ile Asn Tyr Tyr Thr Ser
1 5 10 15

Glu

<210> 36
<211> 21
<212> PRT
<213> Homo sapiens

<220>
<221> MOD_RES
<222> (9)..(9)
<223> PHOSPHORYLATION

<220>
<221> MOD_RES
<222> (13)..(13)
<223> PHOSPHORYLATION

<220>
<221> BINDING
<222> (21)..(21)
<223> BIOTIN

<400> 36

Asp Tyr Gln Val Ser Ser Pro Ile Tyr Asp Ile Asn Tyr Tyr Thr Ser
1 5 10 15

Glu Gly Ala Gly Lys
20

<210> 37

<211> 17
<212> PRT
<213> Homo sapiens

<220>
<221> MOD_RES
<222> (1)..(1)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (11)..(11)
<223> SULFATATION

<400> 37

Tyr Val Ser Gln Pro Asp Asn Thr Tyr Ile Tyr Ser Tyr Glu Ser Ile
1 5 10 15

Asp

<210> 38
<211> 17
<212> PRT
<213> Homo sapiens

<220>
<221> MOD_RES
<222> (9)..(9)
<223> SULFATATION

<220>
<221> MOD_RES
<222> (13)..(13)
<223> SULFATATION

<400> 38

Ser Ile Asp Ile Tyr Asn Pro Thr Tyr Val Ser Asn Tyr Glu Ser Asp
1 5 10 15

Tyr